

Illinois Environmental Protection Agency
Bureau of Air
August 2013

Responsiveness Summary for
Comments and Questions on the
Construction Permit for Modifications at the
Glass Container Plant Proposed for
Saint-Gobain Containers, Inc. in
Dolton, Illinois

Application No.: 12100052
ID No.: 031069AAI

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DECISION

On August 9, 2013, the Illinois Environmental Protection Agency (Illinois EPA) Bureau of Air issued a permit to Saint-Gobain Containers, Inc. (SGCI) for changes to its three glass furnaces and for installation of controls for these furnaces. At the same time, the Illinois EPA issued this Responsiveness Summary to address questions and comments submitted to the Illinois EPA concerning the proposed issuance of a construction permit for this project.

The issued permit includes additional requirements for the proposed project compared to the draft permit, as well as various clarifications to conditions, based on public comments. In particular, the issued permit for the proposed project contains additional testing requirements for emissions of particulate matter to verify compliance with applicable emission limits.

BACKGROUND

SGCI, located in Dolton, Illinois, manufactures glass bottles for the food and beverage industry. SGCI submitted an application to the Illinois EPA, Bureau of Air for modifications to three glass furnaces at the plant, and for installation of a new shared control system for these furnaces. The shared control system would consist of a Catalyst Embedded Ceramic Filter System with Reagent Injection for control of sulfur dioxide (SO₂), particulate matter (PM), and nitrogen oxides (NO_x).

This permit would also addresses certain terms of a Consent Decree, United States, et al. v. Saint-Gobain Containers, Inc., US District Court, Western District of Washington, Case Action No. 2:10-CV-00121-TSZ, entered on May 7, 2010 (Consent Decree). This Consent Decree establishes emission limits and control requirements for various glass furnaces operated by SGCI, including the three furnaces at its Dolton Plant.

The change in emissions attributable to this project are summarized in Attachment 1b of the issued permit, which shows that this project would not constitute a major modification under the state rules for Major Stationary Sources Construction and Modification (MSSCAM), 35 IAC Part 203, or federal rules for Prevention of Significant Deterioration of Air Quality (PSD), 40 CFR 52.21.

COMMENT PERIOD AND PUBLIC HEARING

The Illinois EPA, Bureau of Air evaluates applications for permits for proposed sources of emissions. An air pollution control permit application must appropriately address compliance with applicable air pollution control laws and regulations before a permit can be issued. Following its initial technical review of the application from SGCI, the Illinois EPA Bureau of Air made a preliminary determination that the application met the standards for issuance of a construction permit and prepared a draft permit for public review and comment. Comments on the draft permit were only received from USEPA.

AVAILABILITY OF DOCUMENTS

Copies of the construction permit for modifications to the plant issued to SGCI and this Responsiveness Summary are available by the following means:

1. From the Illinois Permit Database on the Internet:

<http://www.epa.gov/region5/air/permits/ilonline.html>

(Find the documents under All Permit Records (sorted by name), Construction Permit Records).

2. By contacting the Illinois EPA by telephone, facsimile or electronic mail:

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COMMENTS AND QUESTIONS WITH RESPONSES BY THE ILLINOIS EPA

1. As related to requirements of the Consent Decree, SGCI did not adjust its baseline actual emissions "downward to exclude any emissions that would have exceeded an emission limitation with which the major stationary source must currently comply, had such major stationary source been required to comply with such limitations during the consecutive 24-month period," as required by 40 CFR 52.21 (b)(48)(ii)(c). 40 CFR 52.21(b)(48)(ii)(c) does require sources to adjust their baseline actual emissions downward to exclude emission reductions that have or will result from compliance with the Consent Decree's requirement. However, Paragraph 29 of the Consent Decree states that it is not "intended to prohibit SGCI from seeking to utilize emission reductions from the Installation of Controls required by this Consent Decree in determining whether a project on the same Furnace that includes both the Installation of Controls under this Consent Decree and other simultaneous construction that is permitted at the same time...triggers New Source Review." Although requirements of the Consent Decree are applicable emission limitations that the source should apply to the baseline, the Consent Decree specifies that for this project, which includes the installation of controls on each of the furnaces in question, the Consent Decree does not in and of itself as an applicable emission limitation require SGCI to adjust the baseline actual emissions of these furnaces downward to reflect post-control emission rates for purposes of evaluating whether significant emissions increases will occur. In other words, Paragraph 29 neither provides for any affirmative allowance on use of emission reductions nor overrides any rules, including 40 CFR 52.21(b)(48)(ii)(c), it merely

specifies the limit of the scope of the Consent Decree as an emission limitation requiring a downward baseline actual emissions adjustment for purposes of evaluating whether there have been significant emissions increases. However, per Paragraph 29, SGCI would be required to adjust the furnace baseline actual emissions downward for purposes of evaluating whether any future projects that do not involve the installation of Consent Decree controls on these furnaces will trigger New Source Review.

The Illinois EPA agrees with the observation made in this comment. For the current project, SGCI properly conducted its analysis of emissions increases consistent with the Consent Decree. For future projects, adjustments must be made to baseline emissions pursuant to the applicable provisions in 40 CFR 52.21 and 35 IAC Part 203.

2. The draft permit (Condition 1.6 and Attachment 2, Section 5.c.iii) would only require emissions testing for filterable PM using USEPA Method 5. The draft permit would not require testing for emissions of PM₁₀, PM_{2.5}, or condensable PM. Because total PM₁₀, total PM_{2.5} and total PM are individually limited by Condition 1.5(b)(ii)(B),¹ please either add emissions testing requirements for filterable PM₁₀ and condensable PM, filterable PM_{2.5} and condensable PM, and condensable PM, or explain why such emissions testing is not necessary. USEPA Method 201A is recommended for measuring filterable PM₁₀ and PM_{2.5} emissions from stacks that do not have entrained moisture droplets. USEPA Method 202 is recommended for condensable PM emissions.

In response to this comment, the issued permit includes additional testing requirements to address compliance with limits for PM, PM₁₀ and PM_{2.5}. Measurements of condensable PM emissions using USEPA Methods 202 are required. Measurements of filterable emissions using USEPA Methods 201A are also required unless SGCI elects to consider the emissions of filterable PM measured by Method 5 to also be the emissions of filterable PM₁₀ and PM_{2.5}.²

3. The following comments are submitted on the emissions calculations submitted by SGCI:
 - a. In its application, SGCI states that it developed "single" emission factors for PM, PM₁₀, PM_{2.5}, NO_x and SO₂ based on test results from the two tests conducted September 29 through October 1, 2009 and July 28-29, 2011. Since the baseline period was January 2010 through December 2011, only the 2011 emission test was conducted during the baseline period. Please clarify if SGCI used test data from the 2009 test to calculate "pre-July 2011 test" actual emissions, and test data from the July 2011 test to calculate "post-July 2011 test" actual emissions for PM, PM₁₀, PM_{2.5}, NO_x and SO₂.

¹ Draft Condition 1.5(b)(ii)(B) requires the Permittee to comply with "Annual limits in Attachment 1b." The reference to Attachment 1b in this condition is incorrect; the reference should be to Attachment 1a, "Emission Limits for the Project (Tons/Year)."

² Based on current information, moisture droplets will not be present in the exhaust so that use of Method 201A is not precluded.

SGCI indicates that it generally used data from the 2009 test to calculate actual emissions up to the July 2011 test, and data from the July 2011 test to calculate subsequent actual emissions for PM, PM₁₀, PM₂₅, NO_x and SO₂. This methodology, where the most recent test result is used as the basis for estimating actual emissions from the date of the test until a "new" test is conducted, follows the methodology specified in the Consent Decree (See Paragraph IV.7.a.iv).

There was one exception to this procedure for Furnace #1 for NO_x emissions. Actual emissions for NO_x from Furnace #1 were calculated using a stack test performed on Furnace #1 on June 4, 2008. This is because it is the most recent test of Furnace #1 for NO_x emissions, which was not tested for NO_x until July 2011.

Rather than perform emission calculations with two factors for the same emission unit, SGCI elected to combine the September 29, 2009 test factor and the July 27, 2011 test factor for each pollutant into a single factor, by weighting each according to the portion of the total baseline furnace glass pull that occurred when the factor was applicable.³

- b. Please verify that SGCI's reported baseline actual emissions and emissions calculation methodology are consistent with the emission rates and calculation methodology it reported in its annual emissions reports for this time period. Pursuant to 40 CFR 52.21 (b)(48)(i)(d), SGCI may not use any consecutive 24-month period for which there is inadequate information for determining annual emissions and for adjusting this amount for non-compliant emissions if required.

SGCI's has confirmed baseline actual emissions and emission calculation methodology are consistent with the emission rates and calculation methodology reported in its annual emission reports (AERs) for this time period, with the following exceptions:

- (i) To calculate calendar year (CY) 2010 actual emissions, SGCI used data obtained from the September 2009 testing of the furnaces. Since this testing only measured filterable PM, SGCI derived a condensable PM emission rate using the average ratio of condensable PM to total PM for furnaces in SGCI's fleet similar to the Dolton furnaces.⁴

³ For example, the Furnace #2 NO_x emission factor used in the application (3.28 lbs/ton), was calculated by multiplying the September 29, 2009 test factor (3.43 lbs/ton) by the furnace's glass pull from January 1, 2010 through July 26, 2011 (104,584 tons) and the July 27, 2011 test factor (2.68 lbs/ton) by the furnace's glass pull from July 27, 2011 through December 31, 2011 (27,207 tons); summing these values; and then dividing the sum by the total glass pull (131,791 tons).

⁴ Regenerative uncontrolled Furnaces producing Flint or Georgia Green glass only and operating at a cullet usage rate of 20%-40%.

Total PM₁₀ and PM_{2.5} factors were calculated based on 95% of the filterable PM measured in testing being filterable PM₁₀ and 91% of the filterable PM being filterable PM_{2.5}, consistent with particle size data in AP-42 Table 11.15-3. Although this approach could have been used to calculate furnace PM emissions in the CY 2010 AER, SGCI instead simply relied upon the emission factor for filterable PM in Table 11.15-1 of AP-42. Due to this difference, furnace PM emissions reported in SGCI's CY 2010 AER were in fact significantly higher than the CY2010 PM emissions represented in the application. The project baseline actual emission rates in the application for PM, PM₁₀, and PM_{2.5} are each more than 30% lower than the corresponding rates that SGCI reported in its AERs over the same time period.

- (ii) The baseline actual emission rates presented in the October 2012 application include combustion emissions from the furnace distributors and forehearths, whereas these emissions were inadvertently not reported in the AERs over this time period.

- c. For PM, PM₁₀, PM_{2.5}, SGCI assumed in the application that condensable PM is 18.7% of total PM, "based on 2010-2011 compliance test results for the group of similar regenerative Furnaces across SGCI's fleet..." Please explain why SGCI did not use the results of the 2011 testing at the Dolton facility to derive the condensable PM emission rates. The 2011 testing showed condensable PM fractions of only 15.7%. This implies that PM₁₀ and PM_{2.5} emissions during the baseline period could have been lower than reported by SGCI in the application.

The 2011 testing (July 27-29, 2011) for the Dolton facility only provided a single value of condensable PM emissions for each furnace. Multiple tests of condensable PM spaced over a period of several years were not available for the furnaces at the Dolton facility. This additional testing would be needed as a technical matter to confirm the reliability of these test measurements and address normal variability in emissions. Accordingly, SGCI considered it appropriate to develop emission data for condensable PM from a larger body of test data, which was available with its other facilities, that also included data for other similar furnaces. Given the limited amount of test data for condensable PM that was available for the Dolton facility, this approach was generally reasonable. The selected value for condensable PM emission was also conservatively developed as the average of the larger body of test data.

- d. SGCI assumed in the application that all of the condensable PM is PM₁₀ and PM_{2.5} and that 95% of filterable PM is filterable PM₁₀ and 91% of filterable PM is filterable PM_{2.5}, "consistent with AP-42 Table 11.15-3." Although still widely used, these particle size distributions in AP-42 are now more than 25 years old and are

rated "E," the lowest reliability rating for AP-42 emission factors. Please clarify whether SGCI has obtained, or sought to obtain, more recent (i.e., post 1980s) PM_{2.5} and PM₁₀ test data from similar emissions units in its fleet or other sources. If more recent and/or higher rated PM₁₀ and PM_{2.5} emission factors are not available, Illinois EPA should consider including in the draft permit a provision that requires verification of the PM₁₀ and PM_{2.5} emission factors through initial and periodic emissions testing of the affected emissions units.

SGCI indicates that it has not obtained PM₁₀ and PM_{2.5} test data for the Dolton Furnaces or other similar furnaces in its fleet. As explained in the response to Comment 2, the issued construction permit requires testing of condensable PM emissions from the Dolton Furnaces using USEPA Method 202, and testing of filterable PM₁₀ and PM_{2.5} emissions from the furnaces using USEPA Method 201A, or alternatively, using Method 5 instead of Method 201A provided that SGCI considers the Method 5 results to be filterable PM₁₀ and filterable PM_{2.5}. The emission limits for the project and emission changes for the project, included in Attachments 1a and 1b of the permit, respectively, now reflect the assumption that post-project furnace emissions of PM₁₀ and PM_{2.5} will both be equal to furnace PM emissions. In order for PM_{2.5} project emission increases to remain below the 10 tpy significance level, the Furnace #1 production limits set in condition 1.5.a in the issued permit are lower than in the draft permit.

FOR ADDITIONAL INFORMATION

Questions about the public comment period and permit decision should be directed to

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**Listing of Significant Changes between
the Draft Permit And the Issued Permit**

Condition 1.5(a): Lower production limits have been set for Furnace #1 to accommodate the more conservative approach taken to verify PM_{10} and $PM_{2.5}$ emissions.

Condition 1.5(b)(ii)(B): A typographical error identified by a comment was corrected. The draft condition incorrectly referenced Attachment 1b for annual emission limits. The condition now references Attachment 1a, which contains the annual emission limits for the project.

Condition 1.6: This condition now requires testing for condensable particulate and for filterable PM_{10} and $PM_{2.5}$ if SGCI does not consider these emissions to be identical to filterable PM emissions (See Condition 1.6(c) in the issued permit). New Condition 1.6(f) has been added to specify the reporting and notification requirements associated with the emission tests.

Attachments 1a and 1b: Changes made to Attachment 1a (Emission Limits for the Project) and Attachment 1b (Emission Changes for the Project), reflect the lower rates of permitted emissions from Furnace #1, including supporting units. Also, changes have been made to these attachments to reflect larger increases in PM_{10} and $PM_{2.5}$ emissions. This is because SGCI has reevaluated the changes in PM emissions from this project conservatively assuming that all PM is also PM_{10} and $PM_{2.5}$. These changes will result in equal or lower permitted emissions for the project. Finally, a footnote has been added to clarify that limits for PM_{10} and $PM_{2.5}$ includes both filterable and condensable fractions.